

a) Telephonic Communications

Applicants acknowledge the courtesy of Examiner Hess in responding to telephonic inquiries by applicants' undersigned counsel concerning the Office Action initially mailed on March 13, 2002. During the telephonic communications, the only substantive aspect of the pending application discussed with the Examiner was the basis of the outstanding rejection of dependent claim 5. As a result of the telephonic communications, a revised Office Action was transmitted to applicants' counsel by facsimile on April 30, 2002. Examiner Hess' courtesy and prompt assistance in reviewing the Office Action and addressing applicants' inquiries are appreciated.

b) Response To The Art Rejections

In the outstanding Office Action, claims 1 and 2 were rejected under 35 U.S.C. §102(b) based on U.S. Patent No. 5,519,210 to Berner (the "Berner '210 patent"). The remaining claims were rejected under 35 U.S.C. § 103(a) based on the Berner '210 patent, either alone or in combination with U.S. Patent No. 6,338,030 to Senn (the "Senn '030 patent"), U.S. Patent No. 5,118,183 to Cargill (the "Cargill '183 patent"), U.S. Patent No. 6,151,422 to Hayduchok et al. (the "Hayduchok '422 patent"), U.S. Patent No. 5,929,413 to Gardner (the "Gardner '413 patent"), U.S. Patent No. 5,402,361 to Peterson et al. (the "Peterson '361 patent"), U.S. Patent No. 6,301,104 to Hu (the "Hu '104 patent"), or a combination thereof. Applicants respectfully traverse the various rejections, in view of the above-noted amendment to independent claim 1 and the remarks which follow.

Applicants' pending claims may be grouped into two sets: claims 1 and 3-24 are directed to devices for automatic photoelectric measurement of measuring fields contained on an original, and claims 25-28 directed to test originals for testing the settings of a photographic production unit. The foregoing devices and test originals are discussed in turn.

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Applicants' claimed device for automatic photoelectric measurement of measuring fields is particularly adapted for use in "color management," i.e., in applications wherein measurement of originals, e.g., strips, "with very many measuring fields (far above 100) are used and colorimetrically measured with high precision." [See specification, page 3, lines 7-12.] Applicants' claimed device advantageously permits measurement of originals, *including very dense transparent originals*, by providing: (i) a spectral measurement arrangement, *and* (ii) an additional densitometric measurement arrangement. [See amended claim 1.] Applicants' unique device offers universal color management

capabilities by providing accurate measurements across a full range of test originals, including very dense transparent originals.

Turning to the second group of pending claims, Applicants' claimed test originals also provide significantly improved functionality in the color management field. The claimed test originals include a machine-readable code that contains information about the type of original, i.e., characteristics of the original to be measured, and the production unit in which the original is used. Thus, the claimed test original supports enhanced, automated color management. Indeed, applicants' claimed test originals simplify the handling of test originals and reduce the potential for data entry errors associated with test procedures.

i. Rejection of Original Claims 1 and 2

Original claims 1 and 2 were rejected under 35 U.S.C. § 102(b) based on the Berner '210 patent. Applicants have amended independent claim 1 to include the subject matter previously recited in dependent claim 2, and the latter claim has been canceled, without prejudice. Applicants respectfully traverse the outstanding rejection of claim 1, as amended.

In the Office Action, the Examiner states that in the commonly assigned Berner '210 patent, "[t]here is a detecting means, shown in figure 2," that a "reflectance measuring lens 41, a light source 42, a photoelectric receiver 44, and a signal amplifier 45 are involved (column 4, lines 44-56)," and "[s]pectral (color) data is obtained (column 5, lines 17-28)." [See revised Office Action, pages 2-3.] In rejecting dependent claim 2, which was directed to the device of claim 1 further comprising "an additional densitometric measurement arrangement," the Examiner stated that "there is a further densitometer (column 1, line 43) taking measurements in red, green and blue (column 3, lines 30-35; column 1, lines 47-51)." [See revised Office Action, page 3.]

Applicants respectfully submit that the Berner '210 patent does not support the proposed reading thereof. The Berner '210 patent discloses merely a *single* measurement arrangement, and is devoid of any teaching or suggestion to provide both "a spectral measurement arrangement" and "an additional densitometric measurement arrangement," as recited in applicants' amended claim 1. Applicants respectfully submit that the Berner '210 patent fails to provide any teaching as to the desirability of including both a spectral measurement arrangement and an additional densitometric measurement arrangement and, as a result, the apparatus of the Berner '210 patent fails to offer accurate and reliable color management measurements across the universe of test originals. For example, the apparatus of the Berner '210 patent fails to provide reliable measurement data for very dense transparent originals.

By providing both a spectral measurement arrangement and an additional densitometric measurement arrangement, applicants' claimed device for automatic photoelectric measurement of measuring fields overcomes the shortcomings of the Berner '210 patent. For at least the foregoing reasons, applicants respectfully submit that independent claim 1, as amended, patentably distinguishes over the teachings of the Berner '210 patent.

ii. Rejection of Original Claims 3, 4 and 6

Original claims 3, 4 and 6 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent. As noted above, claim 4 has been amended to depend from independent claim 1. Thus, dependent claims 3, 4 and 6 depend directly or indirectly from independent claim 1, as amended. Applicants respectfully traverse the obviousness rejection of claims 3, 4 and 6 over the Berner '210 patent.

As noted above, the Berner '210 patent fails to teach or suggest the desirability of including both a spectral measurement arrangement and an additional densitometric measurement arrangement. Inasmuch as each of claims 3, 4 and 6 depend from, and therefore include the patentably distinguishing recitations of, independent claim 1 (as amended), applicants respectfully submit that these dependent claims patentably distinguish over the Berner '210 patent for at least the reasons noted with respect to independent claim 1. Reconsideration and withdrawal of the outstanding rejection of dependent claims 3, 4 and 6 are respectfully requested.

iii. Rejection of Original Claim 5

Original claim 5 was rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Senn '030 patent. For the reasons discussed herein, applicants respectfully traverse the obviousness rejection of claim 5 over the Berner '210 and Senn '030 patents.

The Senn '030 patent is directed a processor-controlled color measurement device that is designed to conduct *either* spectral emission *or* transmission measurements. The Senn '030 patent is particularly directed to improved data exchange with an external processor or with a network. Like the Berner '210 patent discussed above, the Senn '030 patent fails to teach or suggest a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement. Moreover, the disclosure of the Senn '030 patent fails to recognize the limitations implicit in a color measurement device that does not offer dual measurement arrangement, as claimed by applicants, namely, an inability to generate accurate measurements for a full range of test originals. Thus, the Senn '030 patent fails to cure the deficiencies in the Berner '210 patent, as discussed above.

Claim 5 depends directly from independent claim 1, as amended, and therefore includes the patentably distinguishing recitations thereof. In view of the Senn '030 patent's failure to cure the deficiencies in the Berner '210 patent, applicants respectfully submit that dependent claim 5 patentably distinguishes over a combination of the Berner '210 patent and the Senn '030 patent for at least the reasons noted with respect to independent claim 1. Reconsideration and withdrawal of the outstanding rejection of dependent claim 5 are respectfully requested.

iv. Rejection of Original Claims 7-11, 25 and 27-28

Original claims 7-11, 25 and 27-28 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Cargill '183 patent. For the reasons discussed herein, applicants respectfully traverse the obviousness rejection of claims 7-11, 25 and 27-28 over the Berner '210 and Cargill '183 patents.

The Cargill '183 patent is relied upon for its teachings with respect to inclusion of a white reference patch (claim 7), automatic storage of different types of test strips (claims 8, 9, 25 and 28), and a bar code scheme on a test strip (claims 11 and 27). Applicants respectfully submit that the Cargill '183 patent fails to teach or suggest the desirability of including *both* a spectral measurement arrangement *and* a densitometric measurement arrangement, nor does the Cargill '183 patent recognize the limitations implicit in a color measurement device that does not offer dual measurement arrangement, as claimed by applicants, namely, an inability to generate accurate measurements for a full range of test originals. Thus, the Cargill '183 patent fails to cure the deficiencies in the Berner '210 patent, as discussed above, with respect to dependent claims 7-11.

Accordingly, applicants respectfully submit that claims 7-11, each of which depends directly or indirectly from independent claim 1 (as amended), patentably distinguish over the proposed combination of the Berner '210 and Cargill '183 patents for at least the reasons noted with respect to claim 1 herein. Reconsideration and withdrawal of the outstanding rejection of dependent claims 7-11 are therefore respectfully requested.

With reference to claims 25 and 27-28, applicants note that independent claim 25 is directed to an advantageous test original for testing the settings of a photographic production unit. Applicants' claimed test original includes machine-readable code that contains information about *the type of the original* and/or *the production unit in which the original is used*. The information included in applicants' recited machine readable code significantly enhances the efficacy and reliability of color management testing, as set forth in the specification of the present application.

The Cargill '183 patent fails to teach or suggest the desirability of a test original that provides machine-readable code including information about *the type of the original* and/or *the production unit in which the original is used*. Rather, the Cargill '183 patent merely teaches including bar code information concerning reflectance values for use in calibration:

In accordance with the invention, the densitometer apparatus 410 includes an automatic calibration feature. This calibration feature utilizes what is referred to as an automated calibration strip illustrated in FIG. 30. This calibration strip, identified as calibration strip 780, includes the indicia indicated on the upper part of the strip as indicia 782. At the lower portion of the strip, a label 784 has been adhesively attached to the control strip 780. The label includes a bar code arrangement comprising four bar codes. The bar codes are identified as the calibration base line 786, the red bar code 788, green bar code 790 and blue bar code 792. In addition, the calibration control strip is preferably of a 35 millimeter width and includes a color patch on the upper portion of the strip 780 identified as color patch 794.

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In accordance with the foregoing, the use of the bar code displacement arrangement will allow the densitometer apparatus 410 to automatically detect the reflectance value for the calibration. Accordingly, it is not required for the operator to in any manner manually input the calibration values. The microprocessor 654 is provided with a control program for purposes of measuring the displacement between the calibration base line 786 and the various bar codes 788, 790 and 792. Such an algorithm would utilize a pattern recognition arrangement. Programming of pattern recognition functions is well known in the art of computer program design and circuit design.

The Berner '210 patent fails to cure the clear deficiencies of the Cargill '183 patent. Applicants respectfully submit that the proposed Berner/Cargill combination fails to teach or suggest the inclusion of information about *the type of the original* and/or *the production unit in which the original is used*. The only teaching with regard to the desirability of including such information in machine-readable code on a test original is provided by applicants' specification and claims. Accordingly, the current rejection of independent claim 25 and dependent claim 28 is based on impermissible hindsight and is therefore untenable. Reconsideration and withdrawal of the outstanding rejections of independent claim 25 and dependent claim 28 are respectfully requested.

v. Rejection of Original Claims 10 and 26

Original claims 10 and 26 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Cargill '183 patent and further in view of the Hayduchok '422 patent.

Applicants note that paragraph 13 of the Office Action refers to “claim 27,” rather than “claim 26.” However, based on the Examiner’s discussion of “positioning data” therein, it is believed that the rejection was intended to be directed to claim 26, and applicants respond to the rejection based on such understanding. For the reasons discussed herein, applicants respectfully traverse the obviousness rejection of claims 10 and 26 over the Berner ‘210, Cargill ‘183 and Hayduchok ‘422 patents.

Claim 10 depends directly from independent claim 1, and claim 26 depends directly from independent claim 25. The deficiencies of the Berner ‘210 and Cargill ‘183 patents with regard to independent claims 1 and 25 have been discussed previously. The Hayduchok ‘422 patent fails to cure such deficiencies. In particular, the Hayduchok ‘422 patent fails to teach or suggest either: (i) a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement, or (ii) a test original that includes machine-readable code that contains information about *the type of the original* and/or *the production unit in which the original is used*. Accordingly, applicants respectfully submit that claims 10 and 26 patentably distinguish over the proposed combination of the Berner ‘210, Cargill ‘183 and Hayduchok ‘422 patents for at least the reasons noted with respect to claims 1 and 25, respectively. Reconsideration and withdrawal of the outstanding rejection of dependent claims 10 and 26 are therefore respectfully requested.

vi. Rejection of Original Claims 12-14

Original claims 12-14 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner ‘210 patent, in view of the Gardner ‘413 patent. For the reasons discussed herein, applicants respectfully traverse the obviousness rejection of claims 12-14 over the Berner ‘210 and Gardner ‘413 patents.

Claims 12-14 depend directly or indirectly from independent claim 1, as amended. The deficiencies of the Berner ‘210 patent with respect to independent claim 1 have previously been described. In particular, the Berner ‘210 patent fails to teach or suggest a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement. Applicants respectfully submit that the Gardner ‘413 patent fails to cure the deficiencies of the Berner ‘210 patent and that, therefore, claims 12-14 patentably distinguish over the proposed combination of the Berner ‘210 and Gardner ‘413 patents for at least the reasons noted with respect to independent claim 1 herein. Reconsideration and withdrawal of the outstanding rejection of dependent claims 12-14 are therefore respectfully requested.

vii. Rejection of Original Claims 15-16, 18 and 21-22

Original claims 15-16, 18 and 21-22 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Peterson '361 patent. For the reasons discussed herein, applicants respectfully traverse such obviousness rejection of claims 15-16, 18 and 21-22, each of which depends directly or indirectly from independent claim 1, as amended.

The deficiencies of the Berner '210 patent with respect to independent claim 1 have previously been described, e.g., the Berner '210 patent fails to teach or suggest a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement. Applicants respectfully submit that the Peterson '361 patent fails to cure the deficiencies of the Berner '210 patent and that, therefore, claims 15-16, 18 and 21-22 patentably distinguish over the proposed combination of the Berner '210 and Peterson '361 patents for at least the reasons noted with respect to independent claim 1 herein. Reconsideration and withdrawal of the outstanding rejection of dependent claims 15-16, 18 and 21-22 are therefore respectfully requested.

viii. Rejection of Original Claim 17

Original claim 17 was rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Peterson '361 and Senn '030 patents. Claim 17 depends directly from independent claim 1, as amended, and therefore includes the patentably distinguishing recitations thereof. As previously discussed, both the Peterson '361 patent and the Senn '030 patent fail to cure the deficiencies in the Berner '210 patent. Accordingly, applicants respectfully submit that dependent claim 17 patentably distinguishes over a combination of the Berner '210, Peterson '361 and Senn '030 patents for at least the reasons noted with respect to independent claim 1. Reconsideration and withdrawal of the outstanding rejection of dependent claim 17 are respectfully requested.

ix. Rejection of Original Claim 19 and 20

Original claims 19 and 20 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, in view of the Peterson '361 and Senn '030 patents, and further in view of the Hu '104 patent. Applicants respectfully submit that the Hu '104 patent also fails to cure the deficiencies in the Berner '210 patent. More particularly, the Hu '104 patent fails to teach or suggest a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement.

Inasmuch as dependent claims 19 and 20 depend indirectly from independent claim 1, as amended, and therefore include the patentably distinguishing recitations thereof, applicants respectfully

submit that such claims patentably distinguish over a combination of the Berner '210, Peterson '361, Senn '030 and Hu '104 patents for at least the reasons noted with respect to independent claim 1. Reconsideration and withdrawal of the outstanding rejection of dependent claim 19 and 20 are therefore respectfully requested.

x. Rejection of Original Claim 23 and 24

Original claims 23 and 24 were rejected under 35 U.S.C. § 103(a) based on the teachings of the Berner '210 patent, as modified by the Peterson '361 patent and in view of the Motamed '047 patent. For the reasons discussed herein, applicants respectfully traverse the obviousness rejection of claims 23 and 24, each of which depends indirectly from independent claim 1, as amended.

As noted above, neither the Berner '210 patent nor the Peterson '361 patent teach or suggest a color measurement device that includes *both* a spectral measurement arrangement *and* a densitometric measurement arrangement. Applicants respectfully submit that the Motamed '047 patent fails to cure the foregoing deficiencies of the Berner '210 and Peterson '361 patents and that, therefore, claims 23 and 24 patentably distinguish over the proposed combination of the Berner '210, Peterson '361 and Motamed '047 patents for at least the reasons noted with respect to independent claim 1. Reconsideration and withdrawal of the outstanding rejection of dependent claims 23 and 24 are respectfully requested.

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Applicants note the additional art made of record in the Office Action. Applicants respectfully submit that none of the additionally cited references cures the deficiencies of the references relied upon in the outstanding Office Action, as discussed herein.

For the foregoing reasons, applicants respectfully submit that all claims are now in condition for allowance. Prompt action leading to an early Notice to that effect is earnestly solicited. If the Examiner believes that a telephonic interview may facilitate resolution of any matter, applicants' representative may be contacted at the number indicated below.

Respectfully submitted,
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Name of applicant, assignee, or
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Signature

8/12/02

Date of Signature

VERSION WITH MARKINGS SHOWING CHANGES MADE

In the Claims

1 (Twice amended). A device for the automatic photoelectric measurement of measuring fields contained on an original, the device comprising:

a housing having an insertion opening for the original;

a transport structure for automatically pulling the original into the housing and for transporting the original along a transport path;

a detector of a photoelectric measurement arrangement for providing light of a defined quality to measuring fields contained on the original, for receiving measurement light being remitted or transmitted from the measuring fields pending on the original, and for converting the measurement light into electrical signals representing the colour characteristics of the measuring fields, said photoelectric measurement arrangement being a spectral measurement arrangement, for generating electrical signals representing the spectra of the measured measuring fields on the original; and

a controller for cooperating with the transport members and the spectral measurement arrangement for controlling the pulling in and transport of the original, for converting the electrical signals generated by the spectral measurement arrangement into digital measuring data, and for supplying said digital measuring data to an interface for access by an external computer and further processing; and

an additional densitometric measurement arrangement, cooperating with said controller for generating electrical signals representing the colour densities of the measured measuring fields at least for the colours red, blue and green.

4. (Twice Amended). The device of claim 21, wherein an adjustment structure adjusts the densitometric measurement arrangement transversely to the transport path of the original.

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